

# Dillon J. Amaya

Research Physical Scientist, NOAA Physical Sciences Laboratory

Phone: 816-916-8348

Email: [dillon.amaya@noaa.gov](mailto:dillon.amaya@noaa.gov)

Website: [www.dillonamaya.com](http://www.dillonamaya.com)

## Appointments & Education

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<b>Research Physical Scientist</b> NOAA Physical Sciences Laboratory	2021-present
<b>Postdoctoral Fellow</b> Cooperative Institute for Research in Environmental Sciences (CIRES) University of Colorado Boulder, Boulder, CO	2020-2021
<b>Ph.D., Oceanography</b> Dissertation: Tropical-extratropical climate interactions on seasonal-to-decadal timescales Advisors: Shang-Ping Xie and Art Miller Scripps Institution of Oceanography, San Diego, CA	2019
<b>M.S., Oceanography</b> Scripps Institution of Oceanography, San Diego, CA	2015
<b>B.S., Meteorology</b> Texas A&M University, College Station, TX	2014

## Publications

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### *Submitted/In Revision*

**Amaya DJ**, MA Alexander, MG Jacox, and JD Scott. An evaluation of high-resolution ocean reanalyses in the California Current System. In revision.

**Amaya DJ**, MG Jacox, J Dias, MA Alexander, KB Karnauskas, JD Scott, and M Gehne. Subseasonal-to-seasonal forecast skill in the California Current System and its connection to coastal Kelvin waves. In revision.

Jacox MG, MA Alexander, **DJ Amaya**, E Becker, SJ Bograd, S Brodie, EL Hazen, M Pozo Buil, D Tommasi. Global forecasts of marine heatwaves. In revision.

Zhang Y, S-Y Yu, S-P Xie, **DJ Amaya**, Q Peng, Y Kosaka, X Lin, J-C Yang, SM Larson, AJ Miller, L Fan. Role of ocean dynamics in equatorial pacific decadal variability. In revision.

Shi H, J Fei-Fei, RCJ Wills, MG Jacox, **DJ Amaya**, BA Black, RA Rykaczewski, SJ Bograd, M Garcia-Reyes, and WJ Sydeman. Global decline in ocean memory over the 21st century. In revision.

### *Peer-Reviewed Articles*

**2021** **Amaya DJ**, AM Seltzer, KB Karnauskas, JM Lora, X Zhang, and P DiNezio. Air-sea feedbacks shape North American hydroclimate response to ice sheets during the Last Glacial Maximum. *Earth Planet. Sci. Lett.* <https://doi.org/10.1016/j.epsl.2021.117271>.

Johnson, GC, RL Lumpkin, SR Alin, **DJ Amaya**, et al. (2021): Global Oceans [in "State of the Climate in 2020"]. *Bull. Amer. Meteor. Soc.*, 102 (8), S143 –S198, <https://doi.org/10.1175/BAMS-D-21-0083.1>.

Zhang Y, S Yu, **DJ Amaya**, Y Kosaka, SM Larson, X Wang, J-C Yang, MF Stuecker, S-P Xie, AJ Miller, and X. Lin (2021). Pacific Meridional Modes without Equatorial Pacific influence. *J. Clim.*, <https://doi.org/10.1175/JCLI-D-20-0573.1>.

Karnauskas KB, Zhang L, and **Amaya DJ** (2021). The atmospheric response to North Atlantic SST trends, 1870–2019. *Geophys. Res. Lett.*, 48, e2020GL090677, <https://doi.org/10.1029/2020GL090677>.

**Amaya DJ**, MA Alexander, A Capotondi, C Deser, KB Karnauskas, AJ Miller, and NJ Mantua (2021). Are Long-Term Changes in Mixed Layer Depth Influencing North Pacific Marine Heatwaves? [in “Explaining Extremes of 2019 from a Climate Perspective”]. *Bull. Amer. Meteor. Soc.*, 102 (1), S59–S66, <https://doi.org/10.1175/BAMS-D-20-0144.1>.

**2020** Schmidt DF, **DJ Amaya**, KM Grise, and AJ Miller (2020). Shifts of the North Pacific Subtropical High drive upwelling trends in the California Current System. *Geophys. Res. Lett.* <https://doi.org/10.1029/2020GL088996>.

**Amaya DJ**, AJ Miller, S-P Xie and Y Kosaka (2020). Physical drivers of the summer 2019 North Pacific marine heatwave. *Nat. Comm.*, 11, 1903. <https://doi.org/10.1038/s41467-020-15820-w>.

Johnson NC, **DJ Amaya**, Q Ding, Y Kosaka, H Tokinaga and S-P Xie (2020). Multidecadal modulation of key metrics of global climate change. *Glob. and Planet. Change*, <https://doi.org/10.1016/j.gloplacha.2020.103149>.

**2019** **Amaya DJ** (2019). The Pacific Meridional Mode: a Review. *Curr. Clim. Change Reports*, 5, 296-307, [doi:10.1007/s40641-019-00142-x](https://doi.org/10.1007/s40641-019-00142-x).

**Amaya DJ**, Y Kosaka, W Zhou, Y Zhang, S-P Xie and AJ Miller (2019). The North Pacific pacemaker effect on historical ENSO and its mechanisms. *J. Clim.*, 32 (22), 7643-7661, <https://doi.org/10.1175/JCLI-D-19-0040.1>.

Wang JK, KR Johnson, A Borsato, **DJ Amaya**, GL Griffiths, GM Henderson and S Frisia (2019). Hydroclimatic variability in southeast Asia over the last two millennia. *Earth Planet. Sci. Lett.*, 525, <https://doi.org/10.1016/j.epsl.2019.115737>.

Sanchez SC, **DJ Amaya**, AJ Miller, S-P Xie and CD Charles (2019). Pacific Meridional Mode over the last millennium. *Clim. Dyn.*, 53, 3547–3560, <https://doi.org/10.1007/s00382-019-04740-1>.

**2018** **Amaya DJ**, N Siler, S-P Xie and AJ Miller (2018). The interplay of internal and forced modes of Hadley Cell expansion: lessons from the global warming hiatus. *Clim. Dyn.*, 51, 305-319, <https://doi.org/10.1007/s00382-017-3921-5>.

**2017** **Amaya DJ**, MJ DeFlorio, AJ Miller and S-P Xie (2017). WES feedback and the Atlantic Meridional Mode: observations and CMIP5 comparisons. *Clim. Dyn.*, 49, 1665-1679, [doi:10.1007/s00382-016-3411-1](https://doi.org/10.1007/s00382-016-3411-1).

**2015** **Amaya DJ**, S-P Xie, AJ Miller and MJ McPhaden (2015). Seasonality of tropical Pacific decadal trends associated with the 21st century global warming hiatus, *J. Geophys. Res. Oceans*, 120, 6782–6798, [doi:10.1002/2015JC010906](https://doi.org/10.1002/2015JC010906).

**2014** **Amaya DJ** and GR Foltz (2014). Impacts of canonical and Modoki El Niño on tropical Atlantic SST, *J. Geophys. Res. Oceans*, 119, [doi:10.1002/2013JC009476](https://doi.org/10.1002/2013JC009476).

- 2013 Kramm G, **DJ Amaya**, T Foken and N Mölders (2013). Hans A. Panofsky's Integral Similarity Function—At Fifty, *Atmos. Clim. Sci.*, 3, 4, 581-594. [doi:10.4236/acs.2013.34061](https://doi.org/10.4236/acs.2013.34061).

### *Invited Contributions*

- 2020 **Amaya DJ** and National Center for Atmospheric Research Staff (2020). The Climate Data Guide: [Meridional Modes and their Indices](#).
- 2018 Allen RJ and **DJ Amaya** (2018). The importance of ENSO/PDO to recent tropical widening. In [“Expansion of the Tropics”](#), *Variations*, 16, 8-14, U.S. CLIVAR.
- 2016 **Amaya DJ**, NE Bond, AJ Miller and MJ DeFlorio (2016). The evolution and known atmospheric forcing mechanisms behind the 2013-2015 North Pacific warm anomalies. In [“A Tale of Two Blobs”](#), *Variations*, 14, 1-6, U.S. CLIVAR.

### *Opinion Writings*

- 2017 Victor DG, N Obradovich and **DJ Amaya** (2017). Why the wiring of our brains makes it hard to stop climate change. September 17, 2017. [Los Angeles Times](#).

## Awards & Recognition

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- 2021 Research Highlight, Amaya et al. (2021), US CLIVAR
- 2020 CIRES Postdoctoral Visiting Fellowship, University of Colorado Boulder
- 2018 Best Oral Presentation, Scripps Student Symposium  
Editor's Award, *Atmospheric Science Letters*
- 2017 Outstanding Teaching Assistant Award, Scripps Institution of Oceanography  
Research Highlight, Amaya et al. (2018), US CLIVAR
- 2015-18 Graduate Research Fellowship, NSF
- 2015 Research Highlight, Amaya et al. (2015), US CLIVAR
- 2014 Ed Felder Award for Excellence in Atmospheric Sciences, Texas A&M University  
Excellence in Oceanography Award, Texas A&M University  
Outstanding Student Award, Texas A&M University
- 2013-14 Astronaut Foundation Scholar, Astronaut Scholarship Foundation
- 2012-14 Ernest F. Hollings Scholarship, NOAA

## Funding

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### *Awarded*

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|---------|---|-----------|
| 2021-24 | NSF Paleo Perspectives on Climate Change (P2C2)<br><i>An integrated model-proxy approach to understanding the structure and mechanisms of Western US hydroclimate change since the last glacial period</i><br>Lead PI, with Co-PIs: Alan Seltzer, Kris Karnauskas, Juan Lora and Becca Hatheway | \$549,398 |
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2020-21	CIRES Postdoctoral Fellowship	\$135,000
2015-19	NSF Graduate Research Fellowship	\$138,000

### Department Seminars

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2021	Physical Sciences Laboratory, NOAA Earth System Research Laboratories, Boulder, CO Woods Hole Oceanographic Institution, Climate and Paleo Seminar, Woods Hole, MA University of Connecticut, Department of Marine Sciences, Groton, CT
2020	San Diego State University Climate Justice Series, San Diego, CA ( <a href="#">YouTube Link</a> ) University of Washington, Department of Atmospheric Sciences, Seattle, WA University of Washington, School of Oceanography, Seattle, WA National Center for Atmospheric Research, Boulder, CO ( <a href="#">YouTube Link</a> ) NOAA Marine Prediction Task Force, Boulder, CO
2019	Scripps Institution of Oceanography (Dissertation Defense), San Diego, CA Geophysical Fluid Dynamics Laboratory, Princeton, NJ UK Met Office, Exeter, England University of Exeter, Exeter, England
2018	Georgia Tech University, Atlanta, GA Ulsan Institute of Science and Technology, Ulsan, South Korea
2014	Texas A&M University, College Station, TX
2013	Atlantic Oceanographic and Meteorological Laboratory, Miami, FL

### Conference Presentations

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2021	JpGU (Invited Talk): <i>The North Pacific pacemaker effect on historical ENSO and its mechanisms</i> Climate Variability and Change Working Group Meeting (Talk): <i>Air-sea feedbacks shape North American hydroclimate response to ice sheets during the Last Glacial Maximum</i> Paleo Working Group Meeting (Talk): <i>Air-sea feedbacks shape North American hydroclimate response to ice sheets during the Last Glacial Maximum</i>
2020	AGU (Invited Talk): <i>The North Pacific pacemaker effect on historical ENSO and its mechanisms</i> ( <a href="#">YouTube Link</a> ) AGU (Talk): <i>Are long-term changes in mixed layer depth impacting North Pacific marine heatwaves?</i> ( <a href="#">YouTube Link</a> ) US CLIVAR PPAI Panel Webinar (Talk): <i>The return of the Blob: understanding the recent North Pacific marine heatwave and its implications for the future</i> Climate Variability and Change Working Group Meeting (Talk): <i>The North Pacific pacemaker effect on historical ENSO and its mechanisms</i>

- Ocean Sciences Meeting (Poster): *The North Pacific pacemaker effect on historical ENSO and its mechanisms*
- 2019** The 2<sup>nd</sup> Meridional Mode Workshop (Talk): *The Pacific Meridional Mode: a brief review, pacemaking, and the 2019 event*
- DWR Winter Weather Outlook Workshop (Talk): *Blob 2.0 in the Pacific Ocean, implications for this winter?*
- Eastern Pacific Ocean Conference, EPOC (Talk): *The return of “The Blob” – A near real-time assessment of the 2019 North Pacific marine heatwave*
- CICESE-SIO Joint Symposium (Poster): *The Pacific Meridional Mode pacemaker effect on historical ENSO*
- EGU (Talk): *The North Pacific Meridional Mode effect on historical ENSO and its mechanism*
- 2018** AGU (Poster): *The Pacific Meridional Mode pacemaker effect on historical ENSO*
- Scripps Student Symposium (Talk): *Going against the grain: Quantifying extratropical-to-tropical teleconnections*
- Multi-Modal Oscillations in Ocean Basins Symposium (Talk): *Uncovering the North Pacific pacemaker effect on ENSO*
- 2017** AGU (Talk): *The interplay of forced and internal modes of Hadley Cell expansion: lessons from the global warming hiatus*
- 23<sup>rd</sup> Conference of Parties, COP23 (Talk): *What is driving global rainfall changes?*
- 2016** AGU (Poster): *WES feedback and the Atlantic Meridional Mode: observations and CMIP5 comparisons*
- Graduate Climate Conference (Poster): *WES feedback and the Atlantic Meridional Mode: observations and CMIP5 comparisons*
- CLIVAR Open Science Conference (Poster): *WES feedback and the Atlantic Meridional Mode: observations and CMIP5 comparisons*
- US CLIVAR Webinar (Talk): *The evolution and known atmospheric forcing mechanism of the 2013-2015 North Pacific warm anomalies*
- The 1<sup>st</sup> Meridional Mode Workshop (Talk): *Meridional Modes in the Observed Record*
- 22<sup>nd</sup> Conference of Parties, COP22 (Talk): *The “Hiatus” and the Paris Climate Agreements*
- 2015** Ocean-Atmosphere Dynamics in the Changing Climate Workshop (Talk): *Seasonality of tropical Pacific decadal trends associated with the 21<sup>st</sup>-century global warming hiatus*
- 2014** AMS (Poster): *Impacts of canonical and Modoki El Niño on tropical Atlantic SST*
- Scripps Student Symposium (Poster): *Impacts of canonical and Modoki El Niño on tropical Atlantic SST*
- 2013** AGU (Poster): *How dust was the early Paleogene greenhouse world?*

NOAA Science and Education Symposium (Talk): *Impacts of canonical and Modoki El Niño on tropical Atlantic SST*

**2012** AGU (Poster): *Reconstruction of South Pacific dust accumulation during the early Paleogene greenhouse*

## Other Academic Experience

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**2021** WCRP-CLIVAR Workshop on Climate Interactions Among the Tropical Basins, Virtual

**2020** CESM Workshop, Boulder, CO

**2019** The Large Ensemble Workshop, Boulder, CO

Ocean/Atmosphere Dynamics Meeting, Pasadena, CA

**2017** CESM Tutorial, Boulder, CO

**2016** CLIVAR Early Career Science Symposium, Qingdao, China

NASA JPL Summer School, Pasadena, CA

ENSO Ecosystems Workshop, San Diego, CA

Pacific Anomalies Workshop II, Seattle, CA

Joint US-Japan Workshop on Climate Change and Variability, San Diego, CA

**2015** Pacific Anomalies Workshop I, San Diego, WA

Research cruise (32-days): Flow Encountering Abrupt Topography, *R/V Roger Revelle*, Palau

**2014** Mark A. Cane Symposium, Palisades, NY

**2013** Research cruise (37-days): PIRATA Northeast Extension, *R/V Ron Brown*, Trop. Atlantic

## Professional Service

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### *Memberships & Committees*

**2021-24** Member, American Meteorological Society Air-Sea Interactions Committee

**2020-23** Member, US CLIVAR Predictability, Predictions, and Applications Interface (PPAI) Panel

**2019-20** North American Regional Representative, Young Earth System Sciences Community

**2018-19** Member, Scripps Heritage Committee

**2014-19** Member, Scripps Community Outreach Program for Education (SCOPE)

### *Conference Sessions & Workshops*

**2020** Co-Convener, Large-scale atmosphere-ocean dynamics of climate variability and climate change, AGU Fall Meeting, Virtual

Co-Chair, Eastern Pacific Ocean Conference (EPOC), Mount Hood, OR

**2019** Co-Chair, The 2<sup>nd</sup> Meridional Mode Workshop, Columbus, OH

**2018** Co-Convener, Mechanisms of Low-Frequency Ocean-Atmosphere Variability and Implications for Earth's Energy Budget, AGU Fall Meeting, Washington D.C.

#### *Reviewer*

Nature Geosciences., Nature Communications, Journal of Climate, JGR: Oceans, Atmospheric Science Letters, NASA Physical Oceanography Panel

### Teaching & Mentoring

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- 2021** Guest lecture for *Climate Science and Policy Master's Program*, SIO  
Guest lecture for Prof. John Love, San Diego State University, *Environmental Chemistry*
- 2020** Guest lecture for *Climate Science and Policy Master's Program*, SIO  
Guest lecture for Prof. Donata Giglio, University of Colorado Boulder, *Our Changing Environment*  
Guest lecture for Prof. John Love, San Diego State University, *Environmental Chemistry*
- 2019** Teaching Assistant and guest lecture for Prof. Joel Norris, *Introduction to Atmospheric Science*  
Guest lecture for *Climate Science and Policy Master's Program*, SIO
- 2018** Guest lecture for Prof. Joel Norris, *Introduction to Atmospheric Science*  
Two guest lectures for *Climate Science and Policy Master's Program*, SIO  
Co-Instructor for *Global Environmental Leadership and Sustainability Summer Course*, UCSD  
Guest lecture for Prof. John Love, San Diego State University, *Energy and the Environment*
- 2017** Teaching Assistant and guest lecture for Prof. Joel Norris, *Introduction to Atmospheric Science*  
Co-Instructor for *Global Environmental Leadership and Sustainability Summer Course*, UCSD
- 2016** Guest lecture for Prof. Joel Norris and Prof. Shang-Ping Xie, *Dynamics of the Atmosphere and Climate*
- 2015** Teaching Assistant and guest lecture for Prof. Joel Norris and Prof. Shang-Ping Xie, *Dynamics of the Atmosphere and Climate*  
Guest lecture for Prof. David Larom, San Diego State University, *Energy and the Environment*  
Guest lecture for Prof. Dale Chatfield, San Diego State University, *Environmental Chemistry*

### Community Involvement & Outreach

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#### Volunteer Activities

**2014-19** Conducted 73 tours of the Scripps Pier for local K-12 school groups, perspective donors, visiting government officials, and the general public, San Diego, CA

#### Outreach Presentations

- 2021** Science Journalism Seminar on Marine Heatwaves, Virtual  
Aledade Health Insurance Climate Change Committee, Virtual

Geological Society of South Africa, Virtual

**2020** Aledade Health Insurance Climate Change Committee, Virtual

**2019** Grain Valley High School, Grain Valley, MO  
American Academy of Religion Conference, San Diego, CA

**2018** Horn of Africa Somali Refugee Organization, San Diego, CA  
Franciscan School of Theology, Oceanside, CA  
San Diego Independent Scholars, San Diego, CA  
Yew Chung International School of Hong Kong, Kowloon, Hong Kong

**2017** San Diego Yacht Club, San Diego, CA  
El Cajon Rotary Club, El Cajon, CA  
Pioneer Ridge Middle School, Independence, MO

**2016** Tijuana Estuary Reserve, Imperial Beach, CA  
Encinitas Rotary Club, Encinitas, CA  
Correia Middle School, San Diego, Ca

**2015** La Jolla Public Library, La Jolla, CA  
*R/V Roger Revelle*, Koror, Palau